

2D:4D RATIO AND HORMONAL STATUS IN SCHOOL CHILDREN FROM THREE REGIONS OF RUSSIA: SEX AND AGE DIFFERENCES

Fedenok Julia¹, Butovskaya Marina¹, Burkova Valentina¹, Selverova Nelly², Ermakova Irina²

¹*Institute of Ethnology and Anthropology, Russian Academy of Sciences, Moscow, Russia*

²*Institute of Developmental Physiology, Russian Academy of Education, Moscow, Russia*

The relevance of 2D:4D ratio to prenatal level of androgenization has been currently in the center of attention. The data on association between 2D:4D and testosterone in adult males are highly inconsistent. In this paper we present the data on 2D:4D ratios on both hands, saliva testosterone and cortisol levels in the sample of 1545 boys (mean age: 13.49 ± 2.18 years) and 1716 girls (mean age: 13.56 ± 2.16 years) from three regions of Russia (Central, Volga-river and Northern Caucasus regions). Mean 2D:4D ratio differed significantly in boys and girls (0.97 and 0.98 respectively) on both hands. There was no correlation between 2D:4D and age with control for sex and the region of study. Both saliva testosterone and cortisol levels were higher in boys, compared to girls. The effects of the region and age were significant as well. No association between testosterone level and 2D:4D ratio were found for both sexes. We discuss our data in the light of previously published data on testosterone and the digit ratio. Supported by RFBR, grant 13-06-00393a.

Key words: *2D:4D, saliva testosterone and cortisol, sex, age*

Contact information: Fedenok Julia, e-mail: fedenok.julia@gmail.com.

ASSOCIATION BETWEEN CIRCADIAN PHASE AND LIGHT BEFORE BEDTIME IN JAPANESE CHILDREN AND THEIR PARENTS

Higuchi Shigekazu, Lee Sang-il, Nagafuchi Yuki, Harada Kazuki

Department of Human Science, Faculty of Design, Kyushu University, Japan

It has been pointed out that the children have short sleep time and late bedtime in some countries. Since we have already reported that photosensitivity to light in children is larger than that in adults, exposure to artificial light at night may be a cause of delayed circadian rhythm in children. In this study, association between lighting condition before bedtime and individual difference in circadian phase in children were examined. Twenty children (9.2 ± 1.9 years) and seventeen of their parents (41.7 ± 5.0 years) volunteered to participate in this study. The study was approved by the local Ethics Research Committee in Kyushu University. Firstly, in an accommodation facility, salivary samples were collected every 30 min from 19:00 to habitual bedtime under dim light (< 15 lx) to measure salivary melatonin concentration. Timing of dim light melatonin onset (DLMO) was determined as a marker of circadian phase. The DLMOs in children and their parents were $20:58 \pm 42$ min and $21:58 \pm 96$ min, respectively. The DLMO in children was significantly correlated with that in their parents. This suggests that circadian rhythm of parents can affect that of children. Next, the illuminance level and color temperature of light was measured at home in each participant by themselves. The average and standard deviation of vertical illuminance level at their eye level and color temperature of light was 140.0 ± 82.7 lx and 3862.0 ± 965.6 K, respectively. Interestingly, there were significant positive correlations between DLMO and color temperature in adults and children although illuminance level was not significantly correlated with the DLMO. These results suggest that circadian phase of children is affected not only by circadian rhythm of parents but also by color temperature of light before bedtime in Japan.

Key words: *circadian rhythm, melatonin, sleep, children, light at night*

Contact information: Higuchi Shigekazu, e-mail: higu-s@design.kyushu-u.ac.jp.